

**Amendments to the Claims**

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

Claims 1 – 15 (cancelled)

Claim 16 (withdrawn):           A linear or crosslinked cationic polyelectrolyte composition, wherein said composition comprises copolymerization of at least one cationic monomer with at least one neutral monomer and at least one nonionic surfactant monomer.

Claim 17 (withdrawn):           The composition according to Claim 16, wherein said neutral monomer comprises at least one component selected from the group consisting of:

- a)     acrylamide,
- b)     methacrylamide,
- c)     vinylpyrrolidone,
- d)     diacetone-acrylamide,
- e)     dimethylacrylamide,
- f)     (2-hydroxyethyl) acrylate,
- g)     (2,3-dihydroxypropyl) acrylate,
- h)     (2-hydroxyethyl) methacrylate, and
- i)     (2,3-dihydroxypropyl) methacrylate.

Claim 18 (withdrawn):           The composition according to Claim 17, wherein said composition further comprises an ethoxylated derivative of said component and the molecular weight of said derivative is in the range of from about 400 to about 1000.

Claim 19 (withdrawn):           The composition according to Claim 16, wherein said cationic monomer comprises at least one component selected from the group consisting of:

- a)     2,N,N,N-tetramethyl-2-[(1-oxo-2-propenyl)amino]propanammonium chloride (AMPTAC),
- b)     2,N,N-trimethyl-2-[(1-oxo-2-propenyl)amino]propanammonium chloride,
- c)     N,N,N-trimethyl-3-[(1-oxo-2-propenyl)amino]propanammonium chloride (APTAC),

- d) diallyldimethylammonium chloride (DADMAC),
- e) N,N,N-trimethyl-2-[(1-oxo-2-propenyl)]ethan ammonium chloride,
- f) N,N,N-trimethyl-2-[(1-oxo-2-methyl-2-propenyl)]ethan ammonium chloride,
- g) N-[2-(dimethylamino)-1,1-dimethyl]acrylamide, N-[2-(methylamino)-1,1-dimethyl]acrylamide, 2-(dimethylamino)ethyl acrylate,
- h) 2-(dimethylamino)ethyl methacrylate, and
- i) N-[3-(dimethylamino)propyl]acrylamide.

**Claim 20 (withdrawn):** The composition according to Claim 16, wherein said nonionic surfactant monomers are represented by at least one formula selected from the group consisting of:

- a)  $A-C(=O)-O-[(CH_2-CH(R_1)-O)_n-R]$  (I)
- b)  $R'-[O-CH(R'_1)-CH_2]_{n'}-O-(O=C-A'-C(=O)-O-[(CH_2-CH(R_1)-O)_n-R]$  (I')

wherein said n and said n' each are in the range of from about 1 to about 50;  
wherein said A is an unsaturated aliphatic monovalent radical comprising from

about 2 to about 6 carbon atoms;

wherein said A' is an unsaturated aliphatic divalent radical comprising from about 2 to about 6 carbon atoms;

wherein said R<sub>1</sub> and said R'<sub>1</sub> each comprise at least one at least one component selected from the group consisting of a hydrogen atom, a methyl radical, and an ethyl radical;

wherein said R and said R' each comprise an aliphatic hydrocarbon radical which is saturated, unsaturated, linear, or branched; and

wherein said aliphatic hydrocarbon radicals of said R and said R' each further comprise from about 8 to about 30 carbon atoms.

**Claim 21 (withdrawn):** The composition according to Claim 20, wherein said A comprises at least one component selected from the group consisting of:

- a) vinyl radical, and
- b) 2-propenyl radical.

**Claim 22 (withdrawn):** The composition according to Claim 20, wherein said A' comprises at least one component selected from the group consisting of:

- a) 1,2-ethenediyl radical, and
- b) 2-propene-1,2-diyl radical.

**Claim 23 (withdrawn):** The composition according to Claim 20, wherein said aliphatic hydrocarbon radicals of said R and said R' each comprise from about 8 to about 18 carbon atoms.

**Claim 24 (withdrawn):** The composition according to Claim 20, wherein said R and said R' each comprise at least one linear primary alcohol selected from the group consisting of:

- a) octyl,
- b) pelargonic,
- c) decyl,
- d) undecyl,
- e) undecenyl,
- f) lauryl,
- g) tridecyl,
- h) myristyl,
- i) pentadecyl,
- j) cetyl,
- k) heptadecyl,
- l) stearyl,
- m) oleyl,
- n) linoleyl,
- o) nonadecyl,
- p) arachidyl,
- q) behenyl, and
- r) erucyl.

**Claim 25 (withdrawn):** The composition according to Claim 20, wherein said R and said R' each comprise at least one 1-triacontanoic alcohol selected from the group consisting of:

- a) octyl,
- b) nonyl,
- c) decyl,
- d) undecyl,
- e) 10-undecenyl,
- f) dodecyl,

- g) tridecyl,
- h) tetradecyl,
- i) pentadecyl,
- j) hexadecyl,
- k) heptadecyl,
- l) octadecyl,
- m) 9-octadecenyl,
- n) 10,12-octadecadienyl,
- o) 13-docosenyl, and
- p) triacontanyl radicals.

Claim 26 (withdrawn): The composition according to Claim 20, wherein said R<sub>1</sub> and R'<sub>1</sub> each further comprise a hydrogen atom.

Claim 27 (withdrawn): The composition according to Claim 20, wherein said n and n' each comprise a range of from about 1 to about 10.

Claim 28 (withdrawn): The composition according to Claim 16, wherein said composition comprises:

- a) from about 5% to about 35% of said cationic monomer;
  - b) from about 55% to about 95% of said neutral monomer; and
  - c) from about 0.1% to about 5% of said nonionic surfactant monomer,
- wherein said percentages of each monomer are expressed in terms of monomeric units.

Claim 29 (withdrawn): The composition according to Claim 28, wherein said composition further comprises a non-zero proportion of N-[2-hydroxy-1,1-bis(hydroxymethyl)ethyl]propenamide monomer.

Claim 30 (withdrawn): The composition according to Claim 29, wherein said composition comprises:

- a) from about 5% to about 35% of a cationic monomer;
- b) from about 35% to about 91% of a neutral monomer;
- c) from about 0.1% to about 5% of a nonionic surfactant monomer; and

d) from about 3% to about 20% of a N-[2-hydroxy-1,1-bis(hydroxy-methyl)ethyl]propenamide monomer,  
wherein said percentages of each monomer are expressed in terms of monomeric units.

Claim 31 (withdrawn): The composition according to Claim 30, wherein said composition is not crosslinked.

Claim 32 (withdrawn): The composition according to Claim 30, wherein said composition is crosslinked.

Claim 33 (withdrawn): The composition according to Claim 32, wherein said crosslinked agent is selected from the group consisting of:

- a) diethylenic,
- b) polyethylenic compounds,
- c) diallyloxyacetic acid,
- d) sodium salt,
- e) triallylamine,
- f) trimethylol propanetriacrylate,
- g) ethylene glycol dimethacrylate,
- h) diethylene glycol diacrylate,
- i) diallylurea, and
- j) methylene bis(acrylamide).

Claim 34 (withdrawn): The composition according to Claim 33, wherein the molar proportion of said crosslinked agent is in the range of from about 0.005% to about 1% of the total composition.

Claim 35 (withdrawn): The composition according to Claim 34, wherein said proportion is in the range of from about 0.01% to about 0.2%.

Claim 36 (withdrawn): The composition according to Claim 35, wherein said proportion is in the range of from about 0.01% to about 0.1%.

Claim 37 (currently amended): ~~A composition comprising a self-reversible invert latex, wherein said self-reversible invert latex comprises~~ comprising:

- a) an oily phase,
- b) an aqueous phase,
- c) at least one water-in-oil type emulsifying agent, ~~and~~
- d) at least one oil-in-water type emulsifying agent, and
- e) a cationic polyelectrolyte,

~~wherein said water-in-oil type emulsifying agent or said oil-in-water type emulsifying agent comprises at least one cationic polyelectrolyte composition, and~~

wherein said cationic polyelectrolyte composition comprises a plurality of copolymerized monomeric units of at least one cationic monomer with at least one neutral monomer and at least one nonionic surfactant monomer,

wherein said cationic polyelectrolyte composition present is in a range of from about 20% to about 70% by weight of said self-reversible invert latex,

wherein:

- a) from about 5% to about 35% of said copolymerized monomeric units comprise said cationic monomer;
- b) from about 55% to about 95% of said copolymerized monomeric units comprise said neutral monomer; and
- c) from about 0.1% to about 5% of said copolymerized monomeric units comprise said nonionic surfactant monomer, and

wherein:

- a) from about 5% to about 35% of said copolymerized monomeric units comprise said cationic monomer;
- b) from about 35% to about 91% of said copolymerized monomeric units comprise said neutral monomer;
- c) from about 0.1% to about 5% of said copolymerized monomeric units comprise said nonionic surfactant monomer; and
- d) from about 3% to about 20% of said copolymerized monomeric units comprise said N-[2-hydroxy-1,1-bis(hydroxymethyl)ethyl]propenamide monomer.

Claim 38 (cancelled)

Claim 39 (currently amended):        The ~~composition~~ self-reversible invert latex according to ~~Claim 38~~ Claim 37, wherein said range is from about 25% to about 40% by weight of said self-reversible invert latex.

Claim 40 (currently amended):        The ~~composition~~ self-reversible invert latex according to ~~Claim 38~~ Claim 37, wherein said self-reversible invert latex comprises a total of said water-in-oil type emulsifying agent or and said oil-in-water type emulsifying agent in a range of from about 2.5% to about 15% by weight of said self-reversible invert latex.

Claim 41 (currently amended):        The ~~composition~~ self-reversible invert latex according to Claim 40, wherein said range is from about 4% to about 9%.

Claim 42 (currently amended):        The ~~composition~~ self-reversible invert latex according to ~~Claim 38~~ Claim 37, wherein said water-in-oil type emulsifying agent present is in a range of from about 20% to about 50% by weight of ~~said self-reversible invert latex~~ the total of said water-in-oil type emulsifying agent and said oil-in-water type emulsifying agent.

Claim 43 (currently amended):        The ~~composition~~ self-reversible invert latex according to Claim 42, wherein said range is from about 25% to about 40%.

Claim 44 (currently amended):        The ~~composition~~ self-reversible invert latex according to Claim 37, wherein said oil-in-water type emulsifying agent present is in a range of from about 50% to about 80% by weight of ~~said self-reversible invert latex~~ the total of said water-in-oil type emulsifying agent and said oil-in-water type emulsifying agent.

Claim 45 (currently amended):        The ~~composition~~ self-reversible invert latex according to Claim 44, wherein said range is from about 60% to about 75%.

Claim 46 (currently amended):        The ~~composition~~ self-reversible invert latex according to ~~Claim 38~~ Claim 37, wherein said self-reversible invert latex comprises an oily phase in a range of from about 15% to about 50% by weight of said self-reversible invert latex.

Claim 47 (currently amended):        The ~~composition~~ self-reversible invert latex according to Claim 46, wherein said range is from about 20% to about 25%.

Claim 48 (currently amended):        The ~~composition~~ self-reversible invert latex according to ~~Claim 38~~ Claim 37, wherein said self-reversible invert latex comprises water in a range of from about 5% to about 60% by weight of said self-reversible invert latex.

Claim 49 (currently amended):        The ~~composition~~ self-reversible invert latex according to Claim 48, wherein said range is from about 20% to about 50%.

Claim 50 (withdrawn):        The composition according to Claim 16, wherein said composition may be utilized for at least one function selected from the group consisting of:

- a)        a thickener or an emulsifier for cosmetic or pharmaceutical formulations;
- b)        a thickener or an emulsifier for printing pastes for the textile industry;
- c)        a thickener or an emulsifier for industrial or household detergents;
- d)        an additive for the petroleum industry; and
- e)        a rheology modifier for drilling mud.

Claim 51 (withdrawn):        The composition according to Claim 16, wherein said formulation comprise hair care products.

Claim 52 (withdrawn):        A method for preparing a linear or crosslinked cationic polyelectrolyte composition comprising:

- i)        copolymerizing at least one cationic monomer with at least one neutral monomer and at least one nonionic surfactant monomer.

Claim 53 (withdrawn):        A method for preparing a self-reversible invert latex comprising the steps of:

- i)        emulsifying monomers in an aqueous solution in the presence of at least one water-in-oil type emulsifying agent and a nonionic surfactant monomer;
- ii)       initiating a polymerization reaction by introducing an emulsion formed in step i) and a free radical initiator; and



- iii) introducing at least one oil-in-water type emulsifying agent when the polymerization reaction is complete.

Claim 54 (withdrawn): The method according to Claim 53, wherein said method further comprises emulsifying additives.

Claim 55 (withdrawn): The method according to Claim 53, wherein said method further comprises adding a coinitiator.

Claim 56 (withdrawn): The method according to Claim 53, wherein the step of introducing at least one oil-in-water type emulsifying agent occurs at a temperature of less than about 50°C.

Claim 57 (withdrawn): The method according to Claim 53, wherein step (ii) further comprises distillation before introducing at least one oil-in-water type emulsifying agent.

Claim 58 (withdrawn): The method according to Claim 53, wherein said polymerization reaction is initiated by an oxidation-reduction pair generating hydrogen sulphite ions ( $\text{HSO}_3^-$ ).

Claim 59 (withdrawn): The method according to Claim 58, wherein said hydrogen sulphite ions ( $\text{HSO}_3^-$ ) comprises at least one component selected from the group consisting of:

- a) cumene hydroperoxide-sodium metabisulphite ( $\text{Na}_2\text{S}_2\text{O}_5$ ) pair; and
- b) cumene hydroperoxide-thionyl chloride ( $\text{SOCl}_2$ ) pair.

Claim 60 (currently amended): The ~~composition~~ self-reversible invert latex according to ~~Claim 38~~ Claim 37, wherein said neutral monomer comprises at least one component selected from the group consisting of:

- a) acrylamide,
- b) methacrylamide,
- c) vinylpyrrolidone,
- d) diacetone-acrylamide,
- e) dimethylacrylamide,
- f) (2-hydroxyethyl) acrylate,

- g) (2,3-dihydroxypropyl) acrylate,
- h) (2-hydroxyethyl) methacrylate, and
- i) (2,3-dihydroxypropyl) methacrylate.

Claim 61 (currently amended): ~~A composition comprising a self-reversible invert latex, wherein said self-reversible invert latex comprises~~

- ~~a) an oily phase,~~
- ~~b) an aqueous phase,~~
- ~~c) at least one water-in-oil type emulsifying agent, and~~
- ~~d) at least one oil-in-water type emulsifying agent,~~

~~wherein said water-in-oil type emulsifying agent or said oil-in-water type emulsifying agent comprises at least one cationic polyelectrolyte composition, and wherein said cationic polyelectrolyte composition comprises a plurality of copolymerized monomeric units of at least one cationic monomer with at least one neutral monomer and at least one nonionic surfactant monomer,~~

~~wherein said neutral monomer comprises at least one component selected from the group consisting of:~~

- ~~a) acrylamide,~~
- ~~b) methacrylamide,~~
- ~~c) vinylpyrrolidone,~~
- ~~d) diacetone-acrylamide,~~
- ~~e) dimethylacrylamide,~~
- ~~f) (2-hydroxyethyl) acrylate,~~
- ~~g) (2,3-dihydroxypropyl) acrylate,~~
- ~~h) (2-hydroxyethyl) methacrylate, and~~
- ~~i) (2,3-dihydroxypropyl) methacrylate,~~

~~wherein said cationic polyelectrolyte composition present is in a range of from about 20% to about 70% by weight of said self-reversible invert latex, and~~

The self-reversible invert latex according to Claim 60, wherein said composition further comprises an ethoxylated derivative of said component and the molecular weight of said derivative is in a range of from about 400 to about 1000.

Claim 62 (currently amended): ~~The composition~~ self-reversible invert latex according to ~~Claim 38~~ Claim 37, wherein said cationic monomer comprises at least one component selected from the group consisting of:

- a) 2,N,N,N-tetramethyl-2-[(1-oxo-2-propenyl)amino]propanammonium chloride (AMPTAC),
- b) 2,N,N-trimethyl-2-[(1-oxo-2-propenyl)amino]propanammonium chloride,
- c) N,N,N-trimethyl-3-[(1-oxo-2-propenyl)amino]propanammonium chloride (APTAC),
- d) diallyldimethylammonium chloride (DADMAC),
- e) N,N,N-trimethyl-2-[(1-oxo-2-propenyl)]ethanammonium chloride,
- f) N,N,N-trimethyl-2-[(1-oxo-2-methyl-2-propenyl)]ethanammonium chloride,
- g) N-[2-(dimethylamino)-1,1-dimethyl]acrylamide, N-[2-(methylamino)-1,1-dimethyl]acrylamide, 2-(dimethylamino)ethyl acrylate,
- h) 2-(dimethylamino)ethyl methacrylate, and
- i) N-[3-(dimethylamino)propyl]acrylamide.

Claims 63 – 72 (cancelled)

Claim 73 (currently amended):      The ~~composition~~ self-reversible invert latex according to ~~Claim 72~~ Claim 37, wherein:

- a) from about 5% to about 35% of said copolymerized monomeric units comprise said cationic monomer;
- b) from about 35% to about 91% of said copolymerized monomeric units comprise said neutral monomer;
- c) from about 0.1% to about 5% of said copolymerized monomeric units comprise said nonionic surfactant monomer; and
- d) from about 3% to about 20% of said copolymerized monomeric units comprise said N-[2-hydroxy-1,1-bis(hydroxymethyl)ethyl]propenamide monomer.

Claim 74 (currently amended):      The ~~composition~~ self-reversible invert latex according to Claim 73, wherein said composition is not crosslinked.

Claim 75 (currently amended):      The ~~composition~~ self-reversible invert latex according to Claim 73, wherein said composition is crosslinked.

Claim 76 (currently amended):        The ~~composition~~ self-reversible invert latex according to Claim 75, wherein said crosslinked agent is selected from the group consisting of:

- a)        diethylenic,
- b)        polyethylenic compounds,
- c)        diallyloxyacetic acid,
- d)        sodium salt,
- e)        triallylamine,
- f)        trimethylol propanetriacrylate,
- g)        ethylene glycol dimethacrylate,
- h)        diethylene glycol diacrylate,
- i)        diallylurea, and
- j)        methylene bis(acrylamide).

Claim 77 (currently amended):        The ~~composition~~ self-reversible invert latex according to Claim 76, wherein the molar proportion of said crosslinked agent is in a range of from about 0.005% to about 1% of the total composition.

Claim 78 (currently amended):        The ~~composition~~ self-reversible invert latex according to Claim 77, wherein said proportion is in a range of from about 0.01% to about 0.2%.

Claim 79 (currently amended):        The ~~composition~~ self-reversible invert latex according to Claim 78, wherein said proportion is in a range of from about 0.01% to about 0.1%.